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1936

### General Business Conditions

**T**HE year 1935 has closed with business activity at the highest level in more than five years, and with signs of recovery more widespread than at any time since the turn of the depression was reached in 1932. The year opened with business on the rise; the slackening that followed was chiefly seasonal; and since mid-Summer production and trade have made steady gains. On the average 1935 has been a 13 per cent busier year than 1934, according to the Federal Reserve Board's index of the volume of industrial production. From the low point of 1932 the improvement has been nearly 60 per cent, and this recovers approximately one-half of the ground lost since the peak in 1929.

Crops during the year were not of the best, but were more satisfactory than in 1934; farm products on the average have brought better prices, and the farmers have had a larger income. Workers have had more employment and more pay, and the industries greater earnings. Values of most kinds of property, including stocks, bonds and both city and farm real estate, have improved. Money has been superabundant at unprecedentedly low rates. Foreign trade has shown a fair increase, and the exchange values of the currencies of the important countries (China excepted) have been reasonably stable, although the large movements of gold and silver necessary to sustain them show that equilibrium is still lacking, and stabilization does not seem appreciably nearer.

Of course many of the industries continue depressed, and a few have made little progress during the year. The unevenness of the recovery explains the unemployment, which is still the chief problem of the depression. Industrial construction, heavy railway and utility equipment, and to some extent the railways themselves have lagged behind. On the other hand, the list of industries which have exceeded even the 1929 peak, and set all-time high records in production or sales, is a fairly long one. It

## Economic Conditions Governmental Finance United States Securities



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includes the following, and undoubtedly there are others:

#### All-Time High Records

Electric power	Electric refrigerators
Rayon	Air conditioning equipment
Wool consumption (highest of any peace-time year)	Gasoline consumption
Shoes	Plate glass
Washing machines	Air transport
Oil burners	Cigarettes
Nickel	Mechanical stokers
Electric Lamps	Radios

As would naturally be expected, this list is made up largely of new and expanding industries. Only two of the sixteen, wool and shoes, supply goods that were in any way common fifty years ago, and the commercial development of more than half of them has occurred chiefly within the past ten years. However, this illustrates the importance of the expanding wants of everyone in giving motive power to business. Even during the depression the desire for new things has kept the new industries in the forefront. They give opportunities for employment and outlets for materials which did not exist in 1929; and this natural growth has helped offset depression in the older industries, and now helps on the recovery.

A number of other industries have made their best record since 1929 or 1930, among them the following:

#### High Since 1929

Machine tool orders  
Automobiles (passenger cars and trucks)  
Vacuum cleaners  
Mail order sales  
Petroleum production  
Hosiery production

#### High Since 1930

Steel ingots  
Pig iron  
Zinc  
Fertilizer  
Shipbuilding orders  
Sulphuric acid  
Foundry equipment  
Paint

These are the industries which have come closest to recovering their pre-depression levels, but the record of substantial improvement is by no means confined to them. It includes copper and lumber, whose consumption increased 39 and 24 per cent, respectively, over 1934; farm implements, with sales estimated 75 per cent higher, and tools of all sorts; electrical equipment and light machinery; plumbing and heating supplies; house furnishings, sporting goods and similar merchandise; hotels and

amusements; and residential building, which has shown an increase of 90 per cent, although even this great gain leaves the total only one-fourth of the 1929 level.

#### **Improvement Maintained in December**

This record of improvement has been maintained up to the year-end with no more than the usual slackening in factory operations. Christmas retail trade has been greater than a year ago. In New York and some other large centers the gains have been smaller than hoped for, reducing the increase for the country; nevertheless, dollar sales have been the best since 1930 or 1931 in almost all districts.

Possibly more Christmas money than usual has gone for automobiles, and department store sales may have been affected accordingly. If so, however, it would be difficult to show that business has been a loser, considering the activity in the automobile districts and in the industries supplying materials and parts. Most of the motor companies have turned in remarkable sales records since introducing their new models. General Motors' retail deliveries during November totaled 137,000, which is within a few thousand of the Spring peak made last April, and total passenger car registrations for the month are estimated at 210,000, compared with 107,000 one year earlier. Before the holidays assemblies were running above 100,000 weekly, only 6 to 8 per cent below the Spring peak.

December sales appear to have declined somewhat, but will set an all-time record for the month by a good margin. Undoubtedly the two months' sales have exceeded predictions, and the industry is encouraged to hope that the Winter let-down will not be severe.

The tire and accessory industries have been busy, and steel mill operations were maintained at 55 per cent of capacity or better until just before Christmas, when the usual year-end curtailment began to take effect.

Building contracts awarded during the first half of December were the highest for any half-month in almost five years, and nearly three times as great as the comparable figure a year ago. However, the rise was due chiefly to public works contracts placed before the December 15 deadline, in order to obtain Federal aid. Machine tool orders in November held about even with the good October figures. For eleven months of 1935 the increase over the previous year was 90 per cent.

In the textile industries some degree of curtailment over the holidays is almost a general rule, and has been evident as usual. Otherwise mills have continued busy, with operations ahead of a year ago. Textile production in 1935 has exceeded the 1934 figure by more than 20 per cent, with wool and rayon in the lead.

#### **Possibility of Check to Upswing**

These are impressive figures for the year-end, considering that the upward trend has been

uninterrupted for six months; and the possibility of a temporary slackening of the improvement is not being overlooked. Naturally strong upward movements of business come to a pause. The tendency of distributors is to buy ahead during the rise, particularly when it is accompanied by advances in merchandise prices, as has been the case in a number of lines this Fall; and it becomes necessary to slacken production so that consumption may catch up.

The automobile industry has clearly done part of its 1936 business in 1935, and expects its sales to decline in January and February. If the decline is moderate, production will not be greatly affected, as dealers will carry the cars for Spring sale. However, a substantial drop would cause either a curtailment of production in the first quarter, or failure to make seasonal gains in the second. In either event the industries dependent on automobiles, which have been the leaders during the Fall, would feel the effects. The steel industry may have an additional reason for reducing its operations, due to accumulation of supplies by a variety of steel users who expected a price advance in December, and bought beyond immediate requirements.

Also, it is the opinion of most observers that 1936 can hardly be as active a year as 1935 in textile operations, except in the cotton division, which has been the laggard in 1935. Experience has shown that when these industries set records in one year the next usually brings a slackening, while the goods produced are being worn out and a new replacement demand accumulated. This would point to a falling off, particularly in woollens; but evidently it will not begin immediately, as mills are busy with orders sufficient for some weeks to come.

Fluctuations such as these in industrial operations are to be expected under all business conditions. They are not of great concern, any more than the Spring recession in 1935 was of concern, as long as no fundamental alteration of economic conditions, or major disturbance of confidence, is involved. If the recovery which everyone has been awaiting is in fact under way, any interruption such as has been suggested will be limited.

#### **The Character of Recovery**

Undoubtedly the most encouraging development of the year is the spread of the improvement into some of the durable goods industries. This is another step in the sequence which recovery is expected to follow, according to past experience. The first step was the subsidence of the financial panic, in 1933, and the cessation of forced liquidation at the expense of values. The second was the resumption of demand for necessities to replace the wear and tear of the depression, and the replenishment of inventories; and along with this the absorption of surplus farm products, and improvement in farm prices and income. Third was the exten-

sion of consumer buying from food and clothing to automobiles, farm and household equipment and similar goods. Finally consumer demand is spreading to new or improved homes, and industrial buying is advancing from repairs and necessary replacements to modernization and new installations.

This is a natural and logical progression. The advance in business has carried farther in 1935 than in 1934, not only because recovery is cumulative in nature, but for special reasons, particularly the further rise in farm prices and income, and the encouragement given to business enterprise by the N.R.A. decision. In retrospect these may appear as the most influential causes of improvement in 1935. The cash income of farmers, including A.A.A. payments, has increased 10 per cent over 1934, and this increase produced an equivalent gain in farm buying power, as the prices of goods purchased by farmers are little changed. Also, the reduction in farm debts, taxes and interest during the course of the depression has left a larger share of this income available for trade. It is hardly deniable that the trade improvement, from 1933 through 1935, originated on the farms, for the trade figures themselves show that the gains began, and have been largest, in the rural States.

The N.R.A. decision not only relieved business of restrictions hampering to progress but restored confidence in the continuance in principle of a free economic system. It released forces which ever since have carried the recovery forward. At the time of the decision fears were entertained that it would lead to price and wage cutting and disruption of business. However, a strong recovery proved the fears unfounded. Unquestionably the first benefit of the decision was that it restored the determination of prices, hours and wages to the natural process of bargaining and free competition, and returned to business men the power to decide for themselves such questions as the installation of new productive equipment. It restored some of the flexibility which had been taken away from industrial operations, and again gave scope for superior ability and enterprise, all with results as seen.

Moreover, the decision has undoubtedly influenced the attitude of business men toward other disturbing proposals and legislative enactments. It set forth indisputably the limitations of the Constitution upon the enforcement of overhead control; and common observation will show that it has relieved, to a considerable degree, the apprehensions raised by other measures which have been construed by business men as penalizing enterprise and endangering security and progress.

All this has been of the utmost value. It has helped to shift the emphasis, during 1935, from fear of the difficulties and interferences to be-

lief in the natural forces of recovery, and in their ability to surmount the handicaps.

#### **Importance of Government Spending**

We have given the favorable side of the improvement to date,—the farm gains, the better sentiment, the extension of the upswing into a number of previously laggard industries, all appearing to follow the normal pattern of recovery,—without mention as yet of the factor which makes it impossible to consider this recovery wholly normal: namely, the Government expenditures. It is certain that these expenditures, financed in great part by an expansion of bank credit and therefore adding to current purchasing power at the expense of the future, are giving business very important support. To be sure, the Government deficit represents a comparatively small portion of all the business in the country, or even of the retail trade; yet the trade it supports may readily account for the difference between profits and losses in the industries, and hence have a marginal importance out of proportion to its size.

This is the basis for the arguments of the school of thought which claims that the improvement has been created by the spending. We know of no way of proving or disproving the claim, but it is alarming rather than reassuring. Nothing is more certain than that business cannot indefinitely be supported by the expenditure of billions in excess of receipts, for such "prosperity" would end in wholesale bankruptcy and disaster. There can be no genuine recovery except as business recovers the ability to support itself.

As long as the Government expenditures are so important, the real worth of the improvement is difficult to measure. Can it be said that business is better because of replacement demands, obsolescence, more equitable price relationships and other natural causes? Or is the improvement due basically to subsidies? The essential condition of genuine recovery is that the economic system shall come into better balance; i.e., that prices and costs throughout the system shall reach relationships upon which all producers can buy more from other producers. There is no way of measuring this balance except by the state of trade; for although statistical calculations, such as those made by the Department of Agriculture in comparing farm prices to industrial prices, are useful up to a point, they are at best only statements of the relationship in terms of some past period or some desired goal. The true parities are constantly changing. Also, to what degree is the improvement in farm prices due to Government money? These uncertainties raise justifiable questions as to the extent of progress toward a genuine equilibrium.

Fortunately the conclusions are not necessarily pessimistic. It is certain that the ab-



sorption of the surplus of farm products is a genuine gain, vastly improving their market position as compared with two or three years ago. In the industries constant progress is being made in reducing costs through improved methods and machinery, offsetting the rise in labor costs due to the wage increases in 1933. Thus price relations between raw materials and finished products have been genuinely improved, and their disparity was the most important disruption of trade relationships in the depression. It is reasonable to believe that the improvement would survive, at least in part, if the Government's pump-priming operations ceased.

Moreover, a reduction of Government spending undoubtedly would stimulate private spending to take its place. The great element of uncertainty in the economic situation today, and the chief obstacle to complete business confidence, is the doubt as to the final outcome of the pump-priming experiment. Relief for these fears in all likelihood would bring a resurgence of private activity in the capital goods industries, where recovery is most needed.

#### **The Outlook for 1936**

This discussion leads to a natural conclusion in an attempt to summarize the outlook, but it also gives an idea of the uncertainties involved. Perhaps the factor of first importance is that the Government deficit in 1936 may not be greatly reduced, despite greater tax receipts, for it is presumed that Congress will authorize a payment to the veterans, and relief demands will continue. Thus business will have continued support from Government funds, and all schools of thought can agree as to their off-hand effects on consumer goods trade.

In the second place, the re-equipment of industry may be expected to go on, retarded perhaps but not blocked by the fiscal uncertainties. It has made a beginning in 1935, and under conditions of free competition and high wage rates seems certain to continue, since the need to reduce costs through improved machinery is endless. In addition to capital expenditures made to cut costs, expenditures for new enterprise are greatly needed, but the prospect is less clear.

Finally, the outlook for the farmer gives hope of still another year of improvement in income. The annual outlook statement issued by the Department of Agriculture predicts a greater demand for farm products, due to improved consumer buying power in this country and in many foreign countries. The prospect is for larger crops, given average growing conditions, also larger livestock production, but if the prediction of greater consumer demand is realized prices would be expected to drop little, if at all.

These are three reasons why 1936 is expected to be better than 1935. There are also incalculable elements in the outlook such as the impending Supreme Court decisions and the foreign situation. Finally, it is always possible that fresh proposals disturbing to business will be put before Congress or advocated in the campaign. Prospect of passage of the 30-hour week, the Townsend plan, or other unsound measures would interfere with the recovery, but is not expected.

The truly important question to be answered in 1936 is whether the year will mark the turn from Government-financed to privately-financed recovery. Both private business and those who favor the spending policy want this transition. What solution is there for the problem except the limitation of Government expenditures; and on the side of business unremitting adjustments to promote trade, by setting costs and prices that will move goods and increase production and employment? Such a transition may be naturally accomplished, under sound and cooperative policies, due to the spread of business to the capital goods industries and the corresponding reduction of demands upon the Treasury. However, it is a mistake to assume that it will come without Government economy and private adjustments, as for example in building and railway costs.

Only as events take this course can the year go on record as one of enduring improvement.

#### **Money and Banking**

The rise of monetary gold stocks which has been a feature of the banking situation all year continued during December, although at a diminishing rate as the weeks progressed. Accompanying support accorded the Laval Government in the French Chamber in the early part of the month, francs rallied above the gold point, thus shutting off what had been the principal source of gold engagements during recent months. Arrivals, however, of gold previously purchased in France continued heavy, particularly during the first half of the month, and, together with smaller shipments from other countries, principally Great Britain, India, and Canada, brought total imports for the first 28 days of the month to \$180,000,000.

Counting shipments received during September and October, the total receipts to December 28 amounted to \$861,000,000, carrying total gold stocks for the first time in excess of \$10,000,000,000.

#### **Bank Reserves Lower**

Despite the additions to gold stocks during the month, member bank reserves dropped sharply, mainly because of transactions on and after the 15th. Excess reserves, which on December 11 had reached a new all-time peak of

\$3,300,000,000, declined to \$2,700,000,000 on the 24th.

The reasons for this drop of 600 millions were the usual demand for Christmas currency, payment of the final instalment of income taxes, and the fact that a substantial part of the December 15th Treasury financing subscribed for by the banks was paid for in cash at the Federal Reserve Banks rather than by the customary procedure of writing book credits to the Government deposit accounts. This change in the procedure in paying for Government issues was a consequence of the continuously mounting total of "excess" reserves, out of which subscriptions could be paid, plus the fact that under the new banking law banks are required to pay Federal Deposit Insurance premiums on Government as well as private deposits. The decline in reserves due to currency withdrawals will be offset, of course, after the holidays by the return of currency to the banks. The rapidity with which funds paid to the Government are returned to the market will be determined by the rate of Government expenditures and the policy of the Treasury as to whether its payments are made out of balances at the Reserve Banks or out of balances in the commercial banks. At the present time the amounts of these balances are approximately 600 millions and 900 millions respectively.

There were no important changes in the nominally low level of interest rates on commercial paper and call loans, while the average rate on the weekly auction of 273-day Treasury bills declined further to 0.08 per cent, annual basis. Prices of Government bonds changed little during the month and the average yield on long-term issues outstanding remained in the neighborhood of  $2\frac{3}{4}$  per cent.

#### Changes During the Year

Taking the year as a whole, the outstanding banking feature has been the enormous growth of gold stocks and bank reserves, largely on account of gold imports. The latter amounted to over 1.7 billions, following 1.2 billions imported during 1934. Purchases of gold from other sources, chiefly domestic production, for the year through November 30 were 140 millions. Altogether, monetary gold stocks increased by nearly 1.9 billions to a total of \$10,114,000,000 on December 24. For the not quite two years since revaluation, the gain in gold stocks has been approximately 6 billions, of which roughly 2.8 billions was due to the write-up of the existing stock on revaluation and 2.9 billions to the net excess of imports over exports, counted at the higher value. It is pertinent, though hardly necessary, to state that a credit base of such magnitude is far in excess of the needs of the country, and hence a constant invitation to inflation.

Comparison of the current position of the weekly reporting member banks in 101 leading cities on December 18 with that of a year previous is indicated in the following table:

#### Weekly Reporting Member Banks (In millions of dollars)

	Dec. 18 1935	Change During Year
<b>Deposits</b>		
Demand — adjusted .....	\$13,843	+2,406
Time .....	4,868	+ 99
Government .....	705	+ 732
Bank — domestic .....	5,336	+ 959
Bank — foreign .....	438	+ 302
<b>Total deposits .....</b>	<b>\$25,190</b>	<b>+3,034</b>
<b>Loans and Investments</b>		
Loans on securities .....	3,204	— 17
All other loans .....	4,984	— 10
U. S. Government obligations..	9,772	+1,389
Other securities .....	3,010	....
<b>Total loans and investments .....</b>	<b>\$20,970</b>	<b>+1,362</b>

Total deposits of the reporting member banks rose by approximately \$3,000,000,000 during the year, largely as a consequence of gold imports of \$1,700,000,000 and \$1,400,000,000 of loans made to the Government, both of which directly created deposits. It will be observed that the entire increase in assets was in Government obligations. Almost one-half of the total earning assets of the commercial banking system now consist of Government obligations.

The fact that neither loans on securities nor "all other" loans have shown any increase during the year in the face of the marked rise in the stock market and advance in business generally has been the subject of much comment, and in the case of loans on securities the failure of the totals to expand with rising stock prices and trading has been cited as proof that security purchases are being financed with cash and without resort to bank credit. It should be borne in mind, however, that the Government has been borrowing and spending large sums, and this money, once put into circulation, spreads in all directions, reaching corporations and individuals alike, some of it finding its way into the stock market in the form of "cash" purchases. In other words, the credit is there, but it is being put out through the medium of Government rather than private borrowing.

It is true that there are other factors in the situation. Due to a strong financial position, many corporations have been able to finance expansion out of reserves, while a good part of the buying in the stock market has been for account of foreigners who have paid for their purchases out of funds transferred here through the medium of gold imports.

#### What Next in Silver?

The market position of silver has undergone a great change in the last month. From time to time we have reviewed the silver purchasing policy of the United States Govern-

ment under the act of 1934, and its effects upon China and other silver-using countries. Our readers are aware that the rising price of the metal, resulting from this policy, had a depressing effect upon business in China from the beginning, and that the Government of China made formal representations at Washington to this effect. Last month we brought the story down to date by reporting the action of China in virtually demonetizing silver as standard money, substituting the notes of Chinese official banks as full legal tender and providing for the enforced surrender of all private holdings of silver to the designated banks.

This action was taken on November 3, but although the Shanghai and Hong Kong exchanges had dropped sharply before the announcement, no change occurred in the Washington policy. The United States Treasury continued to buy silver in London at about the price maintained since last August, approximately 65 cents per fine ounce. Indeed its purchases increased, presumably because of higher offerings, the latter indicating that sellers had misgivings that the price might be too good to last. Purchases amounted to 115 million ounces in the six weeks ended December 6, according to Treasury figures.

On December 9, a change in the Treasury policy took place without any announcement, but by simply reducing the purchases to a fraction of what they had been. The market, deprived of its artificial support, declined from day to day as the traders groped in the dark for some clue to the United States policy. As yet none has been found, and the price is down about 18 cents per ounce since the first week in December, and at about where it started on its upward march in August, 1934, presumably headed for \$1.29.

No explanation has been vouchsafed by the Treasury, except that it was continuing to buy silver but chiefly in other markets and particularly in Mexico and South America. Public statements by members of the Senatorial silver bloc indicate resentment toward China and Great Britain for China's action in adopting a managed currency, and show satisfaction with the Treasury's action. Notwithstanding the expressions of confidence, they seem to betray some anxiety as to just what the Treasury is about, and it may be that the Secretary has not told them. Speculation about it is idle.

The known facts are that the President repeatedly has expressed himself as favoring international cooperation for increasing the monetary use of silver, and that the silver purchase policy was avowedly intended to raise the price to a point at which other nations would be willing to join with us. By the purchase of about 762,000,000 ounces at an average price of 57 cents per ounce, and an aggregate expendi-

ture of about \$438,000,000, the price was raised by non-competitive bidding to 78½ cents per ounce in London, last April, and 77.57 cents per ounce for domestic metal (where it remains), but later was dropped to 64¾ cents in London and now is back under 50, all the way down hill. Such movements, it may be observed, are hardly likely to establish confidence in the intrinsic value of silver or enlist the support of other nations.

Of the total purchases, about 592,000,000 ounces were purchases abroad, mainly in London, the principal market, sales coming chiefly from the Far East. Shipments to London usually were protected by forward sales, not to the United States Government, which buys only for cash, but to private parties operating in the market, and no doubt many transactions were purely speculative. The losses of buyers who were caught with holdings, or contracts to buy, when the drop occurred have been heavy, and the losers complain that they have been badly treated for their confidence in the announcements of the United States Government and their inclination to cooperate with its policies.

Doubtless the price could be restored by repeating the process of bidding it up and taking unlimited quantities, but to give real value to our accumulated holdings others besides ourselves should have confidence in silver. At present, the prospect seems unpromising.

The drop in Chinese exchange has caused a rise of prices in China, thus easing the business situation, and the fall in silver probably will put a stop to smuggling. On the other hand, not only the value of the silver reserves held by the Chinese Government, but the ability to use them freely in the defence of the currency, may be impaired, particularly as the balance of trade still remains unfavorable. The policy of the United States Government destroyed the monetary system of China by raising the price of silver so rapidly that it could not be used as the standard of value, and now by dropping the price has lessened the commodity value of China's silver holdings by nearly one-third. This has been swift and violent financing, all within a year and a half, and doubtless inaugurated in the sincere belief that it would enlarge our trade with China. What comes next remains to be seen, but meantime assurances that one-half of the world's population is using silver for money, should be modified by adding that a large proportion of the people in so-called silver-using countries actually use copper.

#### Progress of World Recovery

Survey of world conditions at the turn of the year reveals encouraging symptoms of further recovery in many countries. The tendencies, of course, continue very much mixed, and it is still too early to determine clearly whether the



gains that have been made will be maintained and consolidated, or whether they will be swept away in new disorders and confusion. The threat of a general European conflict constitutes the chief menace to recovery; until peace is assured there can be no real confidence anywhere. The difficulties of the gold bloc countries present another major problem requiring solution, while in the Far East the final outcome of China's efforts to adjust her monetary system to the American silver policy has yet to be seen.

There is doubt also as to the extent to which recovery in the various countries is attributable to natural causes, and how much to artificial influences. Tariffs, monetary depreciation, government spending, subsidies, and control schemes of one kind or another have found widespread favor, and have tended to obscure the situation. In certain countries, notably Germany—and lately Great Britain—rearmament programs have been a factor in increased industrial output and employment, while in Italy war expenditures have promoted peak production in some lines. Such expenditures, however, while temporarily stimulating, are of an unproductive character, and tend in the long run to impoverish rather than to enrich a country.

#### World Production and Trade

Measuring recovery solely in terms of the output of commodities, there is evidence of much progress in getting back to pre-depression levels. This statement is not meant to apply to agricultural products, the production of which varied but little during the depression, but primarily to industrial raw materials other than agricultural and to finished goods. During 1935 production of a number of important commodities, including petroleum, nickel, aluminum, rayon, and staple fibre established new all-time high records. The indexes of industrial production in thirteen countries out of twenty-two reported by the League of Nations passed the 1928 mark, and two others, those of Canada and Germany, came within 10 per cent of that mark. A composite of world industrial output, compiled by the German Institute for Business Research, has likewise exceeded the 1928 level, after having been off as much as 30 per cent at the 1932 low.

World trade and exchange of goods, measured in gold values, reached in October the highest monthly total since recovery began, according to provisional estimates of the League of Nations. The total, however, remains far below pre-depression levels; in October, the gold value of world imports was only 37 per cent of the 1929 monthly average and exports 39 per cent. The contrast thus shown between the recovery of production and of trade is striking. It reflects partly the decline in gold values in which trade is measured, but more largely the fact that world recovery thus far

has been an affair chiefly within, rather than across, national boundaries. This, in turn, is due to a variety of causes, including exchange problems, efforts of national units to become more self-sufficient, and artificial stimulation of internal economic activities, either through credit expansion or by means of work-creating schemes. How far recovery can be expected to proceed on this narrow nationalistic basis is uncertain. Unquestionably, the move towards self-containment will continue, but that recovery can go forward and be sustained without a substantial increase in the international exchange of goods is extremely doubtful.

#### The Rise in Prices of Primary Products

The most promising feature of the present situation is the rise that has taken place in prices of the great staple raw materials and foodstuffs. More than half the population of the globe makes its living by the production and sale of these primary products, which are exchanged in the markets of the world for the products of the more highly industrialized nations. During the depression prices of primary goods fell much more heavily than those of semi-manufactured and finished goods, thus crippling the ability of primary producers to take their usual share of the goods of other producers and involving all in the depression.

The rise in the prices of basic products represents a fundamental change in the situation, in that it revives buying power over wide areas of the earth's surface and restores the basis for trade. It has been brought about partly by short crops and more effective control of production, which has permitted the reduction of burdensome surpluses; also, by a greater natural demand from consuming centers, and to some extent by buying induced by the war scare.

A significant feature of the price advance in 1935 is that it has taken place during a period of relative currency stability, thus evidencing a real improvement in the international price level. This means that the producers of raw materials in Latin-America, Australia, India, etc., have received more local currency without having to resort to further monetary depreciation.

The index of prices of primary products compiled by the Bank of England shows that such prices gained substantially between

Prices of 16 Primary Raw Materials  
Bank of England  
Sept. 19, 1931=100

Date	United Kingdom		United States	
	Paper	Gold	Paper	Gold
April 15, 1933.....	110.3	76.9	85.5	85.5
July 22, 1933.....	135.1	92.7	134.5	94.3
March 24, 1934.....	134.8	84.1	132.5	78.7
Dec. 29, 1934.....	131.5	79.1	146.6	86.9
March 23, 1935.....	130.7	76.1	137.1	81.4
Oct. 12, 1935.....	151.9	91.0	157.4	93.6

March and October of the past year in terms of sterling as well as in gold value, bringing the gold value to the highest point of the recovery, excepting the temporary spurt in mid-Summer, 1933.

#### Improvement in Latin-America

The improvement in the position of primary commodities has resulted in further betterment throughout Latin-America generally. Most of these countries are continuing to make progress in putting their houses in order; government finances are getting into better shape, political conditions are more stable, and local business, in most cases, is showing decided increase. With the expansion of demand for Latin-American products, exchange conditions have improved somewhat, permitting a relaxation of exchange controls in certain instances and making possible larger purchases of foreign goods, stocks of which had run down during the depression. As demand for Latin-American goods increases, it is to be expected that these countries will gradually come into a position to adjust their foreign long-term debts.

A feature of the situation throughout Latin-America, and in other raw material producing countries as well, has been the expansion of local manufacturing. This, of course, is part of the general tendency towards national self-sufficiency, which received impetus during the depression when these countries found it difficult, and often impossible, to transfer funds abroad. This trend to build up local industries is reflected in larger imports of industrial equipment of all kinds, and may profoundly affect the character of world trade in the future.

#### The Situation in the Argentine

Of the various Latin-American countries, Argentina in particular has made progress, having been aided by the drought last year in the United States, which resulted in an enlarged demand for Argentine agricultural products, especially wheat, corn, and linseed. Exports, rising in 1935 to the highest since 1931, were accompanied by increased imports, including automobiles, agricultural implements, railroad materials, electrical equipment, and machinery in general.

As evidence of the growth of local industries in the Argentine, Dr. A. E. Bunge, an Argentine economist of note, has recently pointed out that such industries now employ 43 per cent of the labor in the country, against 23 per cent engaged in purely agricultural pursuits. The expansion of local manufacturing has been almost exclusively in consumption industries. In 1935 there were 200,000 cotton spindles in Argentina, against only 60,000 in 1930. Of a total consumption of 15 million kilos of woollens, four-fifths was supplied in 1933 by local establishments. Local manufacture of furni-

ture, shoes, tires, and lately of rayon, has been growing and supplying an increasing share of the home market. Similar expansion of local manufacturing has been taking place in Chile, Mexico, Colombia, and Peru.

Financially, Argentina has led the other Latin-American countries, with an outstanding record of having paid interest punctually on its external government loans throughout the depression. Favorable trade balances, release of frozen commercial balances under the Runciman-Roca Agreement with Great Britain and similar arrangements with other countries, and large scale conversions of both internal and external debts, have been among the evidences of progress. Budgets during the past two years have been kept within safe limits. The banking system has been revised and a central bank established, the latter having opened last June with gold reserves of about 1,224 million pesos (400 million dollars). Profits from revaluation were applied to reduce the floating debt and will also be used to take over frozen assets from the banks. The short-term debt, which in 1932 was 1,207 million pesos, was reduced through this operation and previous conversions to around 109 million pesos.

In estimating the outlook for Argentina the coming year, allowance should be made for the drought which has reduced substantially the exportable surplus of grains, with the exception of corn; also for the fact that the United States probably will not be as large a buyer of Argentine products this year as last, owing to better crops here. On the other hand, Argentine producers are getting better prices for meats. On December 13, the Government announced minimum prices for wheat and linseed, at 10 pesos per quintal for wheat and 14 pesos per quintal for linseed, equivalent to 90 cents a bushel and \$1.26 a bushel, respectively.

#### Other Latin-American Countries

Chile likewise has benefitted from the improved market for raw materials, particularly copper and nitrates. Internal business has shown marked stimulation, the index of industrial activity, based on 1928 as 100, reaching 153 last June; building also recovered materially, while consumption of electrical energy was 70 per cent greater than before the depression. Externally, the balance of trade has continued favorable, but owing to a rapid expansion of imports this year the export surplus was reduced, leading the Government to restrict grants of exchange for purchases of automobiles, radios, etc. Reports just received to the effect that until further notice the sale of export exchange to importers in Chile has been suspended except after arrival of documents seem to indicate an unexpected shortage of exchange. Heretofore it has been possible for importers to obtain permits to purchase exchange upon presentation of proof that the corresponding imports would eventually be



brought into the country. Government finances are in good shape, and the budget balanced without inclusion of revenue from the nitrate and copper industries which is being set aside for application to foreign debt service pending arrangements with bondholders. With continuance of world industrial and agricultural recovery, Chile should make further progress.

Good reports come also from Mexico, Peru, and Uruguay. Both Mexico and Peru have been enjoying something of a boom, due in part to improvement in the mining industry, especially silver; Peruvian cotton also has been profitable. In Peru, Government revenues have been in excess of expenditures, cash balances abroad have been accumulating, and there has been difficulty in holding the currency from too rapid advances. In April, the Mexican Government was forced by rising silver prices to replace silver in circulation with paper. On balance, however, Mexico, as an important producer of silver, has profited largely by the American silver policy, hence stands to lose with any change in that policy resulting in lower silver prices. Uruguayan business conditions improved during the year, and the exchange situation became easier, reflecting higher prices for meats, hides, and wool.

In Brazil, on the other hand, internal conditions have continued satisfactory, but externally the country has suffered a setback, due to weakness in coffee prices. Whereas last year the situation had recovered sufficiently to warrant restoration of the free market in exchange early this year, the subsequent drop in coffee prices, plus a tendency for imports to expand, necessitated the imposition of partial restrictions in June. Despite the increased diversification of Brazilian industry and agriculture, including large increases in cotton production, coffee remains the chief source of foreign exchange and of ability to buy abroad.

Conditions in Colombia continue slow, owing to low coffee prices and pending tax legislation. Bolivia is suffering from the after-effects of the Chaco war and shows little improvement, despite higher tin quotas. Conditions in Venezuela are likewise unfavorable; although the country enjoys the distinction of having no internal or external indebtedness, producers continue to suffer from low prices for coffee and cocoa and the high value of the Venezuelan bolivar. Within the past month, the death of General Gomez, for many years President of Venezuela, has injected political uncertainties into the situation.

#### Expansion of U. S.-Cuban Trade

A definite turn for the better in Cuban affairs may be traced to September, 1934, when the reciprocal trade agreement between this country and Cuba went into effect. By the lowering of the U. S. duty on Cuban sugar, purchasing

power of the Cuban people has been increased substantially.

Sugar prices obtained in the United States were about \$14 higher per ton this year than last, which means adding some 22 million dollars to the purchasing power of the Cuban people. Fruit and vegetable exports also increased, although the tobacco industry did not fare so well. All in all Cuban exports to the United States during the first ten months of this year amounted to about 99 million dollars, compared with 55 millions last year and 50 millions two years ago. In turn, Cuba bought from this country during the same period about 49 million dollars worth of goods, compared with 37 millions last year and only 21 millions in 1933.

Although improvement has been noticeable in Cuba in all branches of business and industry, and confidence has been gaining, it must be remembered that the Island has been forced to undergo tremendous readjustments. Even at the increased rate, U. S. purchases of Cuban sugar this year were only about half as large as before the depression, while the prices of sugar sold by Cuba in the world markets are only one-third of what they were in 1929. The sugar industry is, of course, following with keen interest the developments in this country in connection with the Agricultural Adjustment Administration and its possible repercussions on Cuba's principal industry.

#### Canada Continues Gain

To the North, Canada has enjoyed further recovery during the year. Improvement in the mining and pulp and paper industries, and in agriculture, has been the basis of Canadian gains. Compared with the United States, industrial recovery not only has proceeded more evenly in Canada, but it has gone farther. In the three months ended October last, the Canadian index of industrial output averaged 84 per cent of the 1929 level, compared with 76 per cent recorded by the Federal Reserve index for this country; also, the percentage increase from the extreme low has been greater in Canada, amounting to 76 per cent, against 61 per cent for the United States.

Mining, in particular, has shown great activity in Canada. Production of gold for the ten months ended October, amounting to 2,683,000 ounces valued at approximately 93.9 million dollars, was 67 per cent in quantity and 182 per cent in value above that of the corresponding period of 1929. Output of nickel, copper, and zinc also reached new high levels in 1935, while the index of mining activity in general in October stood 37 per cent above the 1929 average.

General manufacturing lines likewise improved; newsprint production for November was the largest on record for that month, while steel production for the third quarter was

estimated by the Canadian Bank of Commerce at 88 per cent of "normal", compared with 62 per cent a year ago, and 46 per cent two years ago. Heavy industry, which as in the United States, has been lagging, is reported to be showing definite signs of expansion. Building permits in 58 cities through November were the largest in three years, though only 20 per cent of the total in the like period of 1929. Employment at the close of the year was the largest in five years.

The victory of the Liberal Party at the last election, and subsequent change in the Ottawa Government, promises that Canada will seek to expand her international markets beyond Empire limits. The trade agreement between this country and Canada signed early in November marks the first step in this direction.

Higher prices for grains, cattle, dairy products, eggs, etc., have all bettered the status of agriculture, so important in the Canadian economy. Much of the purchasing power of Canada, however, is still tied up in the large surplus of wheat from the past and present crops, amounting to some 350 million bushels available for this season. The sharp drop in the exportable surpluses of wheat in other countries has increased the chances for Canada to dispose of her accumulations, and much will depend upon the policy which the Wheat Board will choose to follow. So far the shipments, while higher than last year, have been disappointing, though large sales are reported to have been put through following announcement of the higher price in Argentina.

### **Wealth and Its Distribution**

In recent articles upon this subject we have sought, primarily, to emphasize the meaning of "wealth," because it is obvious that many persons have vague ideas about it. Apparently they think of it as an intangible something, possibly fictitious or useless, but somehow exacting "tribute" from the community. We have defined wealth as "desirable things," i.e., tangible goods that have value in the markets, and for which many persons are willing and ready to exchange their own products or services at market values. Furthermore, properties (lands, buildings, tools, equipment, etc.) serviceable in the production of such goods obviously constitute wealth in themselves. Thus the basis of the values recognized as wealth is their capacity to satisfy human wants.

The secondary purpose of the articles has been to briefly sketch the development of the economic system, from its early beginnings, as men learned first about natural wealth, then how to utilize these resources, and finally how to increase the variety and supply of desirable things by exchanging services. We have seen that progress affected the general welfare but slightly down to the inauguration of machine production, a little more than 100 years ago.

The increase of population, small though it was over the ravages of disease, pressed constantly upon the means of subsistence. The population gains of England in all her history down to 1800 A.D. had amounted to about 9,000,000, but this number doubled in the next fifty years and almost doubled again to 1900—clear proof of pronounced improvement in living conditions. The pace of social progress has been greatly accelerated in the last century by the facilities for transportation and communication afforded by railways, steamships, automobiles, aircraft, telegraph, telephone and radio, together with the vast increase in the productivity of the industries and the resulting increase of intercourse and trade. Intercourse has been the chief factor in the development of civilization.

### **Changes Wrought by Power Development**

It is not too much to say that few persons adequately comprehend the changes resulting from the last-named developments. The late Senator George F. Hoar, of Massachusetts, who represented that State in the national Congress (House and Senate) from 1869 to 1904, in the later years of his life wrote his autobiography. Among its notable passages is the statement that when he was a boy in a rural community of Massachusetts, economic and living conditions differed but little from those of a similar Italian village in the time of the Roman empire, more than a thousand years before. He explained that his boyhood fell within the period of hand tools and the household industries, before the common use of power-driven machinery. Except for a few canals, the only means of transportation was by animal power, oxen or horses. Transportation costs were such that trade in the main was local, and in handmade products, between neighbors, face to face.

The entire economic system was open to view and free from mystery. The difference between those conditions and the complexities of modern business accounts for most of the maladjustments, misunderstandings and controversies that now agitate society. The economic principles governing the system are the same today as then and the modern system is vastly more serviceable to everybody, but the multiplicity of relations obscures them.

Every kind of an organization (a combination of separate parts) is subject to disorder, and the more so in proportion to its complexity. A sundial is not an organization, and does not get out of order, but a watch is an intricate organization and requires expert attention. The same is true of an automobile, of railroad transportation, and of the economic system as a whole. It is impossible to have the gains afforded by organization without the risk of disorganization and disorder. The in-

creased efficiency results from the very complexity that makes all parts interdependent. In a free society the only security against disorganization is by intelligent cooperation to maintain the stability of exchange relations. The economic system of 100 years ago was not free from serious disorders, mostly from crop failures and wars, but it was a comparatively simple organization.

#### The Multiplication of Products and Services

The widening field of knowledge and multiplication of expert services in recent years has been indicated by the growing use of the term "engineer." In most of its present applications it is comparatively new. Originally an engineer was one who directed some kind of an engine or contrivance by which force was exerted, at that time by man-power, and usually in warfare. Then came the "civil" engineer, so-called for his peace time work, such as laying out highways, canals, and railroads; then the mechanical engineer, who understood the principles of mechanics and how to design machines for different kinds of work; and now we have the mining engineer, who knows geology and metallurgy; the electrical engineer, who is a specialist in electricity; the hydraulic engineer, who is a specialist in handling bodies of water and in generating power by water; the agricultural engineer, educated in the science of plant production; the chemical engineer, who is a specialist in the properties of matter; the sanitary engineer, who is up to date in defensive knowledge against the pollution of food, water and air; also construction engineers in numerous branches, as architecture, air-conditioning, air-transport, foundations, bridges, tunnels, and so on in every developing field.

This increasing variety of engineers, or expert advisers, is significant of the new industries whose activities are pouring an ever-increasing stream of products and services into the public market. All capital investments are made with respect to the demands of the market, and the part of the market that offers the largest rewards and where competition is keenest, is that which serves the greatest number of buyers. Moreover, the new industries are affording new employment in all grades, from common labor in routine production to the scientists and experts.

Everybody has become a specialist, producing for the market and looking to the market for everything he needs. Each one may be considered as having a running account with the market, with credits for what he sends to it and debits for what he draws from it, and the entries on both sides are determined by the automatic play of market forces, which have their origin in the wants and preferences of the consuming public. Consumers direct production and dominate the system.

Every once in a short while some one, for his own amusement or to make conversation, offers a limited list of men prominent in industry, finance, etc., who are said to practically "control" the economic system. All such lists of course are absurd. The men named have attained distinction and posts of responsibility by evidence of trustworthy judgment in the management of affairs entrusted to them, and have gained this prominence, not by *controlling* developments but by their skill in *conforming* their own policies to them.

In every line of industry and of business service the objectives are better methods, better products, lower costs and prices, satisfaction for consumers and an always increasing volume of sales. The rewards of business are for success in these endeavors, and success in them contributes to the general welfare.

#### The Growth of Production and Consumption

Some idea of the increase of production and consumption in the United States in the period of approximately one generation can be had from the table on page 12, which includes the principal primary commodities used in the industries or entering directly into consumption. It is calculated on a quantity and per capita basis, to include the increasing population during the period under review, 1890-1929. The first two columns of figures show the quantities of each product or service available in the two years 1890 and 1929 and the third column shows the percentage that 1929 bears to 1890 as the base year, taken as 100.

#### Comments on the Tables

Available space does not allow extended comments upon these statistics, but it is obvious that the increased production of basic materials and services is significant of a broad distribution of benefits through the products of all the industries. These are required for the equipment of the industries and in carrying on production. Of products entering directly into consumption, few but the food staples are listed. The metals are required for machinery and construction. New production of metals is now affected by increasing supplies of former production re-appearing as "scrap." Coal is the chief source of artificial "energy," but other supplies are affecting coal consumption. Lumber also is from the natural resources, and per capita production actually declined 20 per cent, which compares with an increase of over 900 per cent for print paper, a competitor for material, and about the same for cement, a competitor in use. Concrete, steel and other building materials have become relatively cheaper while lumber prices were rising.

By-products are a leading feature of modern industry and, for lack of up-to-date data, few are listed here. The products of cotton seed, all formerly wasted, at present prices aggre-



## Per Capita Growth of Production, Consumption and Wealth in the United States, 1890-1929

(1890 Base = 100)	Per Capita 1890	Per Capita 1929	Per Cent of 1890
<b>Production of Metals:</b>			
Steel production (lbs.).....	152.2	1,040.2	683
Pig iron production ".....	327.5	785.5	240
Copper production ".....	4.1	16.5	399
Lead production ".....	4.4	11.1	249
Zinc production ".....	2.0	10.3	509
Aluminum production ".....	c	1.9	—
<b>Annual Supply of Energy:</b>			
Coal (millions of B.T.U.).....	58.3*	131.9	226
Petroleum ".....	3.1*	49.7	1,584
Natural gas ".....	4.2*	17.0	405
Water power ".....	1.4*	15.9	1,110
Total energy ".....	67.1*	218.3	326
Electricity produced (kwh.)....	e	801	—
Gasoline consumpt. (gals.)....	c	129.9	—
Horsepower per 1,000 pop.....	118	547	464
<b>Indus. Materials &amp; Mfg.</b>			
Newsprint consumption (lbs.)...	5.9	61.8	1,047
Lumber production (bd. ft.)....	379†	304	80
Cement production (bls.).....	0.12	1.42	1,147
Phosphate rock prod. (lbs.)....	18.1	69.3	382
Gypsum prod. (lbs.).....	5.8	82.6	1,422
Sulphur production (lbs.).....	c	43.5	—
Rubber imports (lbs.).....	0.5	9.7	1,800
Flaxseed consumpt. (lbs.).....	3.8	16.9	192
Cottonseed oil (lbs.).....	4.2	13.2	317
Value of coal tar prod. (\$).....	a	1.06	—
Product. per employee in mfg.	100g	189.7	190
<b>Transport &amp; Communication:</b>			
Railway ton-miles.....	1,211	3,705	306
Railroad Employees (thous.)....	749	1,661	222
Thous. ton-miles per employee	102	269	265
Tons of freight per train.....	175	804	459
Automobiles per 1,000 pop.....	f	218	—
Telephones per 1,000 pop.....	4	165	4,125
Radio sets per 1,000 pop.....	b	99h	—
Postal gross revenues (\$).....	.96	5.73	597
<b>Textiles:</b>			
Cotton consumption (lbs.).....	19.76	28.31	143
Wool consumption ".....	6.07	5.41	89
Rayon consumption ".....	b	1.08	—
Silk imports ".....	.07	0.71	967
<b>Food Products:</b>			
Sugar consumption (lbs.).....	51.1	102.4	200
Coffee imports (lbs.).....	7.6	12.1	159
Tobacco consumption (lbs.)....	5.2	6.6	127
Wheat flour consumption (lbs.)	260.2	199.3	77
Cocoa imports (lbs.).....	0.3	4.1	1,368
Raisins prod. (lbs.).....	.6	3.7	615
Potato production (lbs.).....	143.0	162.4	114
Butter consumption (lbs.).....	19.5†	17.4	90
All dairy products (lbs.).....	a	1,040†	—
Eggs consumption (doz.).....	13.5†	18.3†	135
Oleomargarine (lbs.).....	0.54†	2.74	507
Cattle slightr'd per 1,000 pop...	75	68	90
Hog slightr'd per 1,000 pop....	374	399	107
Sheep slightr'd per 1,000 pop....	86	115	134
5 Leading grains prod. (lbs.)..	2,161	1,991	92
<b>Government, Education and Insurance:</b>			
Fire insurance coverage (\$).....	233§	1,266	543
Life insurance in force (\$).....	64	849	1,327
Education expend. (\$).....	2.24	18.87**	842
College students per 10,000 pop.	11	80	740
Hospital beds per 10,000 pop...	a	74	—
Federal govt. expenditures (\$)...	5.05	27.15	538

## Notes:

- (a) Not available. (b) Did not exist.  
 (c) Insignificant. \$ Average, 1881-1900.  
 \*Average 1886-1890.  
 (e) In 1902 the per capita production of electricity in public utility power plants was only 60 kwh.  
 (f) There were but 4 automobiles registered in 1895.  
 (g) Index base is 1899 equals 100.  
 (h) 147 radio sets per 1,000 persons in 1934.  
 \*\*Census of 1930. †Census of 1889. ‡1927.

Production figures in above table are adopted also for consumption, unless otherwise stated, upon the assumption that the differences between exports and imports are unimportant. Automobile figures are for licensed cars.

gate in value \$1.63 per head of the entire population. Coal-tar products, only recently saved, aggregate more than \$1.06 and will be much more. The meat-packing industry is noted for utilizing everything from an animal but the squeal, and the chemical industry is teaching all of the industries to utilize their materials in like manner. In the early years of the petroleum industry, kerosene was the only product of importance and gasoline was refined away to get it. When gasoline became of growing importance, the "cracking" processes were developed for reducing the heavier products to it; also, the lubricating oils have become of great importance to industry and other products are on the market. In 1929, of 987,708,000 barrels of crude oil run to refineries, the products were 434,241,000 barrels of gasoline, 57,154,000 barrels of kerosene, 34,359,000 barrels of lubricants, 630,074,000 pounds of wax, with 447,894,000 barrels of gas-oil and fuel-oil.

It is evident that the by-product possibilities of both coal and oil are far from being fully utilized at present.

For automobiles, telephones, radio sets, airships, rayon, coal-tar products, aluminum, sulphur, and even kilowatt-hours, no percentage of gain over 1890 can be computed, because practically all production since 1890 has been gain. Wool consumption has diminished per capita, although production per capita has increased, imports having declined. With more people employed indoors, the demand for heavy clothing has declined. The increase of cotton consumption is not so large as in many new lines of manufactures, but is 43 per cent per capita, which, however, is due principally to increase in industrial uses, as both rayon and silk are competing products. Rayon, paper and other cellulose products would make a good story by themselves, but we lack space for it here. In food products the changes per capita have been small, with both losses and gains, because the digestive capacity per capita has not increased, and with vegetables and fruits more plentiful in the markets, it is surprising that consumption of the old staples has been so well maintained. There is no comparable data for dairy products in 1890 but about one-half ton per capita is now consumed yearly. The feed crops have been affected by the substitution of machine power for animal power.

The increased productivity of labor in the industries has resulted from improvements in methods and equipment. The average productivity per capita of all employes of the manufacturing industries in 1929 was 90 per cent above that of the base year 1899, as calculated by Professor Mills for the National Bureau of Economic Research, and he added

the following comment, covering all production:

At the pre-war rate, 63 years would have been required for a doubling of the individual's share in the annual output of the country, while at the rate of increase prevailing between 1922 and 1929, such doubling would have required only 29 years—  
"Economic Tendencies" (p. 310)

In considering the volume of railroad traffic, and especially of passenger travel, it is necessary to take account of travel by automobiles and buses and freight traffic by trucks, all a development since 1890. Bus transportation has become a major industry, with regular lines connecting all large cities and serving rural communities. Figures for all truck transportation are not available, but Dr. A. G. Black, Chief of the Bureau of Agricultural Economics, Department of Agriculture, in a recent statement has said:

In 1934 carlot and boat shipments of fruits and vegetables in the United States exceeded 800,000 cars. Estimated motor-truck shipments amounted to slightly less than 500,000 cars, or about 38 per cent of the total market movement.

Live stock shipments to central markets are estimated to have reached in 1934 approximately 48 per cent of the total movement, the average haul being 115 miles.

#### Deficiencies of the Table

The table shows the increased supplies of crude materials and increased capacity of that section of the industries, but gives little idea of the full gains of the economic system during the period. It tells almost nothing of the vast increase in the variety and volume of finished goods finally distributed; nothing of improvements in design, manufacture, and all the qualities that make for superiority. It does not tell of the release of labor from many tasks of hard manual toil, or of the general reduction of the work-week in the urban industries and transportation from 60 hours to 48 and less. Nor does the table measure the stimulus and variety given to life by new facilities for recreation, pleasure and education, as the automobile, radio and moving pictures, or the protection to health and life from the advances of science in hygiene, surgery and medical treatment. In short, the chief interest in the table is not for the mere statistics of business, but for what they tell or imply of the service of business to the common welfare.

#### The Economic Equilibrium

If the reader will think of each of the items of the table as representing a group of producers, and then conceive of all the groups that are producing finished goods, engaged in transportation, trading or rendering personal services, and of all of these trading with each other, he will have some idea of the complexities of the economic system, and the necessity for stable and reciprocal relations between these parts. All are studying the wants of their customers, and it is common knowledge that

the bulk of the products have wide distribution. It is important to note that some of the most talked-of features of the depression are related to changes which on the whole are beneficial although at present disturbing to the industries directly affected. Agriculture and coal-mining are examples of such industries.

We have referred before to the general benefits resulting from the increasing productivity of agriculture in the past, by enabling a smaller proportion of the total population to produce the farm products required. This tendency has been accelerated in recent years. Crop rotation, soil treatment, better fertilizers, the fostering aid of agricultural colleges and the national department of agriculture, all have been factors, and the development of refrigeration, (another service of chemistry) has been of great importance. The automobile and truck are useful facilities in farm operations and tractor-power has given increased capacity to all farm equipment.

Under the auspices of the American Society of Agricultural Engineers, an inquiry has been conducted recently into the gains in the quality values of farm machines between 1910-12 and 1932. The work of valuation was done by a Committee of the Society, consisting of Professors J. B. Davidson of Iowa State College, G. M. McCuen of Ohio State University, and R. U. Blasingame, of Pennsylvania State College. We quote the following summary\*:

In the following table the authors have endeavored to fairly evaluate (in per cent) the increased efficiency, durability, economies in operation, etc., of each type of machines, using the corresponding quality values in the 1910-14 machines as a base (100). The basis for the authors' estimate as to each machine is explained in the detailed studies which form a part of this report:

	Per cent of 1910-14
Grain binder .....	170
Cultivator .....	165
Grain drill .....	140
Farm engine (3-horse power) .....	200
Disk harrow .....	190
Peg-tooth harrow .....	130
Spring-tooth harrow .....	140
Hay loader .....	155
Mower .....	170
Corn picker .....	210
Corn planter .....	155
Tractor plow .....	190
Gang plow .....	150
Walking-plow (1-horse) .....	140
Walking-plow (2-horse) .....	140
Sulky rake .....	135
Side-delivery rake and tedder .....	140
Cream separator .....	145
Corn sheller (power) .....	190
Corn sheller (hand) .....	170
Manure spreader .....	180
Grain thresher .....	195
Feed grinder .....	175
Ensilage cutter (16-inch blade) .....	215
Spraying machine (two-nozzle) .....	175

The interrelations between the industries are illustrated by the fact that, as in the case of

\*"Report of an Inquiry into Changes in Quality Values of Farm Machines Between 1910-14 and 1932." Published by the American Society of Agricultural Engineers, St. Joseph, Michigan. (Price: 50 cents per copy).

automobile construction, the new steel alloys are an important factor in making lighter and stronger farm machines; also other machinery, especially railroad trains and airships.

It cannot be questioned that any reduction in the labor cost of the soil products is a benefit to the masses, but it is also true that the rapid increase in the productive capacity of farm workers has created a problem in agriculture. It is also true that the rapid increase was stimulated by the temporary demands of war-time.

The coal industry was greatly stimulated by the war-time consumption; costs and prices rose rapidly, and resort was had to economies in both production and consumption. Coal-cutting machines were installed in the mines, and engineers built power-plants that would develop more power to a ton of coal. Thus during the twenty-year period ending with 1929, the average consumption of fuel per unit of product in the United States was reduced as follows:\*

	Per Cent
Electric public utility plants (pounds of fuel per Kilowatt hour) .....	- 66
Steam railroads (pounds of fuel per transportation unit) .....	- 47
Petroleum refining (energy consumed, excluding by-product refinery gas, per barrel of crude oil) .....	- 36
Iron furnaces, steel works, and rolling mills (coal, oil and purchased power, excluding natural gas, per ton of product) .....	- 25
Cement mills (fuel and purchased power per barrel of product) .....	- 21
All other manufacturing (energy consumed per unit of product) .....	- 21
All industries and railroads, combined, approximately .....	- 33

Obviously employment in coal mining was doubly affected by these economies, and there is still another factor affecting employment.

We have referred to the effects of power-driven machinery in lessening the hard toil formerly performed by manual labor, and much of this was in mining and shoveling coal. As the boiler plants, including fire-boxes, increased in size, the labor became more arduous, until the automatic stoker was introduced some time after 1900. Before that, the New York Edison Company in its East River station employed about 250 firemen in three shifts, handling up to about 5,000 tons of coal per day, but with the introduction of stokers the number fell to 48, and now with powdered coal 36 will handle a corresponding amount. Since 1905 the labor has been light. Mr. George A. Orrok, engineer, says:

The fireman of the hand-fired days worked hard, laboriously, not alone in firing the coal into the furnace but had great difficulties at the time of cleaning of the fires, a very severe task. The present day fireman can wear reasonably good clothes and most of his work is confined to pressing electric buttons, entering the records into a book and looking through observation doors into the fire. The hard labor is done entirely by machinery.

What is true of the relief afforded by automatic stokers in central power stations is

\* Tryon, F. G., and Rogers, H. O., "Statistical Studies of Progress of Fuel Efficiency," Transactions, Second World Power Conference, Berlin, 1930, vol. vi, p. 360.

quite as true of them on railway locomotives and in steamship boiler rooms.

No doubt some of our readers will be disposed to emphasize the loss of 200 or more jobs in the New York Edison boiler rooms, but the policy of saving costs was enlarging the business and requiring more employment in other departments. The total number of employees of the electric systems have doubled about every twelve years, and the average price of current to household consumers was reduced 38 per cent from 1913 to 1934.

#### The Rising Pace of Progress

In this showing of the influence of changes in two industries is presented the problem of maintaining the equilibrium of the economic system. Fewer workers are required in farming to feed the population, and fewer workers are required in mining and shoveling coal. On the other hand, declining costs of farm products and of power production mean lower living costs for the entire population, which in turn means a release of purchasing power from former uses to buy the products of other industries. Therefore, the aggregate of employment is not reduced but a shift of employment is required to meet the changing conditions. Nothing is gained by producing a surplus of anything, and surplus workers in any line are useless. If an attempt is made to divide the employment among excessive numbers, either the wages must be reduced or the higher cost of the product will increase the price to consumers, and unemployment will result. Therefore, work-spreading is no remedy. Readjustments in the distribution of employment among the industries is required.

It is a serious matter to have workmen out of employment, but unemployment is inevitable unless the system is kept in balance, for the groups are interdependent. To condemn all improvements that save labor in industries, would be to change the economic system from one of constant progression, which is always enlarging the demand for labor, and affording new opportunities, to one of stagnation and despair. All of the gains of past time have been made by the changes in employment that have made labor more effective in the satisfaction of common wants.

We have shown in this series of articles that about 6,000,000 persons are now directly engaged in employments resulting from the new uses of power, and practically all within the period of this table. These facts are pertinent to all proposals to shorten the running time of machinery to nullify the effects of improved methods in industry. Would we have been fortunate to have adopted that policy in 1890? The people who would suffer most by it are those whose purchasing power is limited. Since everyone derives continuing benefits from the system everyone owes loyalty to it, and a will-



ing acceptance of changes that are broadly and permanently advantageous to society.

We have referred to the service of power-driven machinery in lessening the hard manual labor of numerous industries, and notably in mining and shoveling coal. It is in order to refer to the service of electricity in the homes and for the relief of the home-makers. Passing over the earlier time, when cloth was made by hand-spinning and hand-loom and clothing by hand-sewing, women have done almost all housework by hand-labor. They made the soap and candles, trimmed the lamps, made most of the carpets and draperies, did the cooking (for a long time in the fire-place), swept the floors and dusted the furniture, carried wood and water, the latter from a spring or raised from a well by a windlass or pulley, preserved the food by hanging it in the well, and performed other tasks too numerous to mention. Now the electric current does the lighting, operates the vacuum cleaner, sewing machine, laundry equipment, refrigerator, radio, moving-pictures, telephone, and does minor services. Passing from electrical services to other services of the modern economic system, the automobile ranks above everything else so far that we will close the list with only a mention of aviation and air-conditioning, the latter just arriving.

#### Women in Business

But this is not all of the services of the modern economic system to women, for there are services outside of the home. Down to about the beginning of the period of this table, almost no employment was open to women outside of the home and school-teaching. Then came the typewriting machine, another labor-saving invention, and office employment was opened to women, and a place in the business world. Critics of the economic system said that the outlook was dark, because women would take men's places at lower wages and purchasing power would fall. Instead of that the employment of women turned out to be just that much additional employment, earning power and volume of business.

In 1870, 13.1 per cent of all women and girls ten years of age or older were "gainfully employed" (the census term); in 1930 the percentage had risen to 22 per cent, the actual numbers being 1,836,000 in 1870 and 10,752,000 in 1930. The additional employment of women did not lessen the employment of men, for of the total number of men and boys ten years of age or older, 74.8 per cent were employed in 1870 and 76.2 per cent in

1930. This record should be accepted as conclusive proof that improvements in industry do not reduce the opportunities for employment.

Excepting the violent changes resulting from abnormal conditions, notably from war, it is reasonable to believe that the loss of employment in coal mines and boiler rooms might have been readily provided for by the increase of employment in the new industries, and that the change might be agreeable rather than otherwise. Also, that the volume of additional purchasing power in the hands of consumers, resulting from the economies in coal consumption, when expended for other things—such, for example, as the new household equipment named—would support as much employment as it did in mining and handling coal. Furthermore, coal is a diminishing asset; when present stores are exhausted there will be no more; it is the present dependence for power, and our present standards of living are dependent upon power-driven machinery. Coal should not be wasted to provide useless employment, for it is possible that all may be usefully employed.

The scientific imagination long has dreamed of a utilization of solar heat by direct application to making steam. It has been known that coal is the remains of forests produced by the influence of the Sun upon the Earth and buried by cataclysms of Nature; also that fire can be produced by a concentration of the solar rays: therefore the only questions have been the practical ones of mechanism and cost. Within the last week Dr. C. G. Abbott, Secretary of the Smithsonian Institution, Washington, D. C. has demonstrated to the annual meeting of the American Association for the Advancement of Science a model for such an engine said to be four times as efficient as any previous design. It is still a question of cost, but the model excites interest as a demonstration of the principle and of progress in the problem. It also serves to illustrate the principle that gains in knowledge and changes in industry involve changes in economic relations. If, eventually, heat and power should cost no more than water, (not an early possibility) would that be a calamity to mankind?

We are obliged to close these comments upon the tables, although they might be extended to make a book, and will end with the question: How did the people obtain the purchasing power to buy the increasing quantities of goods and services coming to the markets since 1890? The answer is simple: by exchanging services with each other! The more they could produce the more they could have, so long as their trading relations were in balance.

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